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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

SANDISK CORPORATION,

Plaintiff and Counterclaim Defendant

V.

ROUND ROCK RESEARCH LLC,

Defendant and Counterclaim Plaintiff.

Case No. 3:11-cv-05243-RS

**ROUND ROCK'S OPPOSITION TO
SANDISK'S MOTION FOR
SUMMARY JUDGMENT ON COUNT
VII OF ROUND ROCK'S
COUNTERCLAIMS – ASSERTED
CLAIMS 1–4 OF U.S. PATENT
6,383,839 ARE INVALID FOR
ANTICIPATION**

Date: TBD
Time: TBD
Place: Courtroom 3
Judge: Hon. Richard Seeb

**ROUND ROCK'S OPPOSITION TO SANDISK'S MOTION FOR
SUMMARY JUDGMENT ON COUNT VII OF ROUND ROCK'S
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6,383,839 ARE INVALID FOR ANTICIPATION**

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1 INTRODUCTION

2 SanDisk moves for summary judgment that claims 1–4 of Round Rock’s U.S. Patent No.
 3 6,383,839 (“the ’839 patent”) are anticipated by U.S. Patent No. 4,266,282 (“the ’282 patent”).¹ But
 4 the ’282 patent fails to disclose a key inventive aspect of those claims—“fabricating a semiconductor
 5 device of *the preexisting design.*”² Instead, the ’282 patent is directed to creating ***new***
 6 semiconductor chip designs with configurations suitable for vertical mounting, not reconfiguring
 7 preexisting designs.³ SanDisk largely ignores this deficiency, and spends much of its brief
 8 mischaracterizing the ’839 patent, and claims 1–4 in particular. For example, SanDisk repeatedly
 9 contends that the “alleged improvement of the ’839 patent” is arranging connections along one edge
 10 of a semiconductor chip and mounting the chip perpendicularly,⁴ ignoring the preexisting design
 11 limitations. SanDisk’s description of the “alleged improvement of the ’839 patent,” however, cannot
 12 withstand scrutiny because the ’839 patent itself acknowledges that those concepts were known:

13 *Compare* SanDisk’s Characterization:

14 The Alleged Improvement of the ’839 Patent over Chip-on-Board
 15 Mounting Concerned ***Arranging Bonding Pads Along One Edge*** of a
 16 Semiconductor Chip and ***Perpendicularly Mounting*** the Chip on the
 17 Circuit Board (SanDisk Br. at 3.)

18 With the ’839 patent’s Background of the Invention:

19 U.S. Pat. No. 5,668,409 (the “’409 patent”), issued to Stephen Joseph
 20 Gaul on Sep. 16, 1997, discloses a ***vertically mountable***, bare

21 ¹ The ’839 patent is attached to SanDisk’s Motion, Dkt. No. 141, as Exhibit A and the ’282 patent is
 22 attached as Exhibit B.

23 ² Emphasis added unless otherwise noted.

24 ³ The parties agreed that the phrase “preexisting design” means “a previous design (as opposed to a
 25 new design).” (Transcript of January 16, 2013, *Markman* Hearing at 63:7–11; Dkt. No. 106, Ex. A at
 26 18.)

27 ⁴ In the context of the ’839 patent, mounting the chip “perpendicularly” is the same as mounting the
 28 chip “vertically”—both refer to installing a chip such that the attachment is only along one edge and
 29 the chip stands upright relative to the mounting surface. (*See, e.g.*, ’839 patent at Figs. 1, 3a, 3b.)

1 semiconductor die which includes ***bond pads along the edge*** thereof.
 2 ('839 patent at col. 2:17–20; *see also id.* at col. 1:51–2:5.)

3 Indeed, the '282 patent is merely duplicative of the '409 patent identified by the patentee—it does
 4 not disclose the preexisting design limitations. And SanDisk's description is misleading because
 5 claims 1–4 ***do not require perpendicular mounting***. SanDisk's motion largely ignores the actual
 6 requirements of claims 1–4, which all require starting with a preexisting semiconductor device
 7 design and reconfiguring it through implementation of the claimed method steps, including among
 8 other things fabricating electrical traces that extend toward a single edge and forming corresponding
 9 bond pads. As discussed below, the '282 patent fails to disclose this claim element and SanDisk's
 motion should therefore be denied.⁵

10 **LEGAL STANDARDS**

11 Summary judgment is appropriate only where “the pleadings, depositions, answers to
 12 interrogatories, and admissions on file, together with the affidavits, if any, show that there is no
 13 genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of
 14 law.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986) (quoting Fed. R. Civ. P. 56(c)). A disputed
 15 fact presents a genuine issue “if the evidence is such that a reasonable jury could return a verdict for
 16 the non-moving party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). “When ruling on
 17 a motion for summary judgment, all of the nonmovant’s evidence is to be credited, and all justifiable
 18 inferences are to be drawn in the nonmovant’s favor.” *Caterpillar Inc. v. Deere & Co.*, 224 F.3d
 19 1374, 1379 (Fed. Cir. 2000). “Because patents are presumed valid, a moving party seeking to
 20 invalidate a patent at summary judgment must submit such clear and convincing evidence of facts

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22 ⁵ SanDisk also failed to address parties’ proposed constructions for the disputed terms of claims 1–4
 23 of the '839 patent (*see, e.g.*, Dkt. No. 106, Ex. A at 18–20), despite the Federal Circuit’s instruction
 24 that “[a] determination that a claim is anticipated involves a two-step analysis: the first step requires
 25 construing the claim, and the second step in the analysis requires a comparison of the properly
 construed claim to the prior art.” *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed.
 Cir. 2010).

1 underlying invalidity that no reasonable jury could find otherwise.” *TriMed, Inc. v. Stryker Corp.*,
 2 608 F.3d 1333, 1340 (Fed. Cir. 2010) (citations and internal quotations omitted).

3 **FACTUAL BACKGROUND**

4 **I. Claims 1–4 Of The ’839 Patent Require Reconfiguring A Preexisting Design**

5 Claim 1 of the ’839 patent is an independent claim, and claims 2–4 depend from claim 1 and
 6 thus include all of its limitations. Claim 1 reads as follows:

- 7 **1. A method for reconfiguring a connection pattern of a**
 8 **preexisting semiconductor device design, comprising:**
 9 **fabricating a semiconductor device of the preexisting**
 design;
 10 **fabricating electrical traces that extend toward a single**
 edge of said semiconductor device and communicate
 with internal circuitry thereof; and
 11 **forming a plurality of bond pads on said semiconductor**
 device, adjacent a single edge thereof, each bond pad of
 said plurality of bond pads communicating with a
 corresponding one of said electrical traces.

14 (’839 patent at col. 5:57–67.)⁶ As claim 1 states in the preamble, it is directed to a method for
 15 reconfiguring a connection pattern of a ***preexisting semiconductor device design***. The first method
 16 step requires fabricating a semiconductor device of the preexisting design. This limitation
 17 necessarily requires a semiconductor device of a preexisting design as a starting point. The second
 18 and third steps require, among other things, fabricating electrical traces that extend toward a single
 19 edge of said semiconductor device and forming bond pads on said semiconductor device. Contrary
 20 to SanDisk’s assertions, claim 1 and the corresponding dependent claims are directed to this
 21 reconfiguration method. (Aframowitz Decl. at ¶ 9.)

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 25 ⁶ It is apparent that claim 1 does not require perpendicular mounting. No such limitations appear in
 26 the claim. And none of claims 2–4 do either. (’839 patent at col. 6:1–10.) SanDisk’s description of
 27 the ’839 patent as directed to perpendicular mounting is thus belied by the plain language of claims
 28 1–4.

1 The specification provides further explanation regarding the advantages of using a
 2 preexisting design. For example, with respect to the preferred embodiment shown in Figure 2 of the
 3 '839 patent, the patent explains that the bond pads may be "redirected" so that that "existing
 4 semiconductor device designs are useful in the package of the present invention":

5 Referring to FIG. 2, semiconductor device **10** is a semi-
 6 conductor device of the type known and used in the industry,
 7 which includes circuit traces and active elements. The bond
 8 pads **12a**, **12b**, **12c**, etc. of semiconductor device **10** are
 9 disposed on active surface **11**, adjacent to a single edge **16**
 10 of the semiconductor device. Preferably, bond pads **12a**,
 11 **12b**, **12c**, etc. are arranged in-line. Bond pads **12a**, **12b**, **12c**,
 12 etc. may be disposed a short distance from edge **16**, or their
 13 lower edges may be flush with the edge. **Thus, during**
 14 **fabrication of semiconductor device **10**, bond pads **12a**, **12b**,**
 15 ****12c**, etc. are redirected to a location which is adjacent to**
 16 **edge **16**.** Methods and mechanisms which are known to
 17 those of ordinary skill in the art are useful for manufacturing
 18 semiconductor devices which are useful in the package
 19 according to the present invention. Such methods include
 20 the formation of electrical traces which lead to edge **16** and
 21 the fabrication of bond pads **12a**, **12b**, **12c**, etc. adjacent to
 22 edge **16**. Preferably, the fabrication steps which precede the
 23 formation of the electrical traces that lead to bond pads **12a**,
 24 **12b**, **12c**, etc. and the formation of the bond pads are
 25 unchanged from their equivalent steps in the fabrication of
 prior art semiconductor devices. **Thus, existing semiconduc-**
tor device designs are useful in the package of the present
invention with little modification and no increase in the
number of fabrication.

1 ('839 patent at col. 3:32–56.) Similarly, the '839 patent explains that "fabrication of the device
 2 requires no additional steps relative to the fabrication of many similar semiconductor devices in the
 3 prior art." (*Id.* at col. 5:42–45.) Reconfiguring preexisting designs therefore allows those designs to
 4 be used for different purposes after minimal changes rather than having to develop brand new
 5 designs. (Aframowitz Decl. at ¶ 10.)

23 II. The '282 Patent Is Directed Toward New Designs, Not Preexisting Designs

24 Unlike the '839 patent, the '282 patent is not directed towards reconfiguring preexisting
 25 designs, but rather to designing new semiconductor chip designs with configurations suitable for
 26 vertical mounting. (Aframowitz Decl. at ¶ 12.) The '282 patent does not even mention reconfiguring
 27 or redesigning a preexisting design. Indeed, the very first sentence of the '282 patent Abstract

1 explains that “[a] semiconductor chip *is so designed* that the signal and power terminals are brought
 2 to one edge of the integrated circuit chip,” demonstrating that the ’282 patent is focused on new
 3 designs, not reconfiguring previous designs. The ’282 patent further discusses how semiconductor
 4 chips can be designed in ways that facilitate vertical mounting. The ’282 patent’s focus on new
 5 designs is also shown by the example in Figure 2, which is a memory “preferably *laid out* so that the
 6 longest length of the memory array area is parallel to the one edge that contains the terminal 12.”
 7 (’282 patent at col. 4:38–41.) Figure 2 therefore discloses a new design *laid out from the beginning*
 8 in a configuration with the terminals on one side. That requires that a designer have control over the
 9 layout, which would not necessarily be the case if a preexisting design was reconfigured.
 10 (Aframowitz Decl. at ¶ 13.) The ’282 patent also notes that “[t]his *memory layout* is advantageous
 11 because it *reduces the length of connections between the various circuits to the one edge*
 12 containing the signal and power input and output terminals.” (’282 patent at col. 4:47–52.) This
 13 passage also refers to a new design, because the designer would not be expected to have control over
 14 those aspects of the layout in a preexisting design. (Aframowitz Decl. at ¶ 13.) The remainder of the
 15 ’282 patent is consistent, describing potential issues and considerations for chip design. These issues
 16 are important to chip designers who have a large measure of control over the design of a chip that
 17 has not yet been fabricated, but not to reconfiguring a previous design. (Aframowitz Decl. at ¶ 14.)
 18 The claims are also consistent, requiring either “a vertical semiconductor memory integrated circuit
 19 chip package” or “a vertical semiconductor memory chip package,” and not reciting any limitations
 20 concerning reconfiguration.

21 ARGUMENT

22 I. SanDisk Mischaracterizes The ’839 Patent And Particularly Claims 1–4

23 As described above, claims 1–4 of the ’839 patent all require “fabricating a semiconductor
 24 device of the preexisting design.” (’839 patent claim 1, at col. 5:59–60.) Tellingly, SanDisk spends
 25 several pages of its brief discussing the ’839 patent but never mentions this aspect of the claims.
 26 Instead, SanDisk contends that “the ’839 patent is directed to perpendicularly mounted chips” and
 27 further that “the alleged improvement of the ’839 patent over chip-on-board mounting concerned

1 *arranging bonding pads along one edge* of a semiconductor chip and *perpendicularly mounting* the
 2 chip on the circuit board.” (SanDisk Br. at 2–5.) But the ’839 patent specifically points out that both
 3 bonding pads arranged along one edge and perpendicular (or vertical) mounting were concepts
 4 known in the prior art:

5 U.S. Pat. No. 5,668,409 (the “409 patent”), issued to
 6 Stephen Joseph Gaul on Sep. 16, 1997, discloses a **vertically**
 7 **mountable, bare semiconductor die which includes bond**
pads along the edge thereof.

8 (’839 patent at col. 2:17–20; *see also id.* at col. 1:51–2:5.) Given that disclosure, SanDisk’s
 9 characterization of the ’839 patent cannot be correct.

10 Moreover, SanDisk’s description mischaracterizes claims 1–4 because *those claims do not*
 11 *require perpendicular mounting*. Rather, claims 1–4 are directed to reconfiguring a connection
 12 pattern on a preexisting semiconductor device, and say nothing about how the device will eventually
 13 be mounted. While vertical mounting is an embodiment disclosed in the ’839 patent specification,
 14 that does not bear on the validity of claims 1–4 because those claims do not require any particular
 15 mounting configuration, as opposed to claim 5 for example.⁷ *See, e.g., Hewlett-Packard Co. v.*
 16 *Genrad, Inc.*, 897 F. Supp. 1479, 1490 (D. Mass. 1995) (“As in other contexts, it is the claims which
 17 define the claimed invention for purposes of anticipation.”) (citations omitted).

18 II. The ’282 Patent Does Not Disclose Using A Preexisting Design

19 The ’282 patent is directed to designing new semiconductor chips with configurations
 20 suitable for vertical mounting, not reconfiguring preexisting designs. (Aframowitz Decl. at ¶ 12; *see*
 21 *also* discussion *supra*.) Accordingly, the ’282 patent fails to disclose the requirement of claims 1–4
 22 of the ’839 patent of “fabricating a semiconductor device of the preexisting design.” (Aframowitz

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 24
 25 ⁷ Claim 5 recites “[a] method for securing a semiconductor device *nonparallel relative to a*
 26 *substrate . . .”* (’839 patent at col. 6:11–12.)
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 28

1 Decl. at ¶ 17.) In its claim chart, SanDisk points to the following passage in the '282 patent as
 2 allegedly “disclos[ing] several types of pre-existing semiconductor designs”:

3 **The vertical integrated circuit package may be used**
 4 **for memory, logic, microprocessor, programmable**
 logic arrays and combinations thereof.

5 (*citing* '282 patent at col. 4:3–5.) But the enumerated uses in that passage are not preexisting
 6 designs. Rather, those are merely descriptions of potential uses for an integrated circuit. (Aframowitz
 7 Decl. at ¶ 15.) For example, the term “memory” standing alone (which is the full extent of the
 8 alleged disclosure of a preexisting design) does not connote any particular design, but rather is
 9 merely a high level description of a particular function that could be implemented in a virtually
 10 unlimited number of different designs. (Aframowitz Decl. at ¶ 15.) Similarly, if one of ordinary skill
 11 in the art were asked to physically reconfigure a “memory,” such a task would not be possible
 12 without more information about how the memory was designed and implemented. (Aframowitz
 13 Decl. at ¶ 15.) Genuine issues of material fact therefore exist with respect to whether the bare
 14 recitation of possible semiconductor uses, such as “memory,” disclose the “preexisting design”
 15 limitations of the '839 patent.

16 SanDisk also contends that the preexisting design is illustrated in figure 2 of the '282 patent.
 17 But figure 2 of the '282 patent cannot be a preexisting design because it is designed from scratch to
 18 optimize the layout for vertical mounting. (*See* '282 patent at col. 4:38–41, 4:47–52; *see also*
 19 Aframowitz Decl. at ¶ 16.) As discussed above in the factual background section, figure 2 of the
 20 '282 patent and the accompanying description describe how to design a layout, which necessarily
 21 requires that the designer have control over the layout. That would not be the case with a preexisting
 22 design. (Aframowitz Decl. at ¶ 16.) This is further supported by the '282 patent's focus on new
 23 designs, and the absence of any disclosure of reconfiguring preexisting designs. (*See id.* at Abstract
 24 (“A semiconductor chip is so designed that the signal and power terminals are brought to one edge
 25 of the integrated circuit chip.”).) Accordingly, a reasonable jury could find that the '282 patent does
 26 not disclose the preexisting design limitations, either with respect to the enumerated uses (such as
 27

1 “memory”) or the disclosure related to figure 2. (Aframowitz Decl. at ¶¶ 15–17.) SanDisk’s
 2 summary judgment should therefore be denied. *TriMed*, 608 F.3d at 1340.

3 **CONCLUSION**

4 For the foregoing reasons, Round Rock respectfully requests that this Court deny SanDisk’s
 5 motion for summary judgment of invalidity of claims 1–4 of U.S. Patent No. 6,383,839.

6
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Respectfully submitted,

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